In contrast to the comments made by the examiner in the Office Action, Chiappetti actually discloses a toll collection system 10, best shown in Fig. 1 that has a stationary control unit 19 that sends out a request signal REQ to oncoming traffic. When a vehicle such as 12 that has mounted therein a mobile vehicle sending unit 17 reaches stationary control unit 19, upon receipt of the REQ signal, the mobile vehicle sending unit 17 would output a response signal INFO, which provides the identification information of vehicle 12 to the stationary control unit 19, so that the vehicle identification information may be recorded for toll collection purposes. (Column 2, line 55 to column 3, line 2)

Focusing only on the first lane of the multi-lane toll, a cable switch 22 is placed at the end of the stationary control unit 19 across the lane for detecting any vehicle that passes over it. If a vehicle fails to respond to the REQ signal output from the station control unit 19 and is sensed by the cable switch 22, a STOP signal is generated to request the vehicle to stop to pay the toll. Alternatively, the toll booth operator can take down the license number information of the vehicle in question so that toll charges may be levied against the vehicle at a later time. If the toll booth operator fails to get the information or there is not much traffic, then the vehicle is stopped and toll is collected. (Column 3, lines 11-49)

In contrast, the claimed invention provides an environment whereby a limited radio-communication service zone is effected by an antenna, and within or preceded by the antenna by a predetermined interval is a sensor that senses the presence of the vehicle. Thus, it is only within this limited radio communication service zone that a determination is made on whether the vehicle is a ETC vehicle or a non-ETC vehicle. The need for such environment is necessitated by the fact that if a non-ETC vehicle is followed too closely by a ETC equipped vehicle, then the non-ETC vehicle

would be erroneously judged as an ETC vehicle, due to the response being returned by the ETC vehicle.

The Chiappetti system does not allow for such close scrutiny of whether a vehicle is a mobile vehicle sending unit equipped vehicle, as table switch 22 will only sense the contact made by the tires of a vehicle. Thus, if a vehicle equipped with a mobile vehicle sending unit happens to have more tires than a regular vehicle and if that vehicle were to pass cable switch 22 and is followed closely by a non-sending unit equipped vehicle, then the toll system of Chiappetti would erroneously allow the later vehicle pass without paying the toll since the later vehicle would have deemed to be a response sending unit equipped vehicle. Moreover, by not detecting the second vehicle, the system of Chiappetti would perhaps cause more confusion if there follows yet other vehicles closely to the second vehicle that are equipped with vehicle sending units.

It is believed that it is because of this potential confusion that Chiappetti came up with a second embodiment of the invention, shown in Fig. 4, in which the vehicle sending unit 17' has a shaker switch 89, which activates the signal transmitter to send out the INFO signal, when the vehicle runs over a bump 84' placed along the toll lane. (Column 5, lin 18 to column 6, line 48)

Claims 1, 2 and 5-7 are therefore believed not to be anticipated by Chiappetti.

Claims 3-4 were rejected as being obvious under 35 U.S.C. 103(a) as being unpatentable over Chiappetti and Hassett et al. U.S. patent 5,406,275.

The Hassett system is used to determine whether an incoming vehicle is in a proper lane of a multi-lane toll plaza. Chiappetti discloses toll collection system.

There is no disclosure or suggestion or motivation provided in either Chiappetti or Hassett that the teachings of those references may be combined as asserted by the examiner in the Office Action.

In view of the foregoing, the examiner is respectfully requested to reconsider this case and pass the same to issue.

Respectfully submitted,

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Date: Dec 4 2002

VERSION TO SHOW MARKINGS TO SHOW CHANGES MADE

Attachment Claims Pursuant to 37 C.F.R. 1.121(c)(1)(ii)

Please amend claims 1 and 6 as follows:

1. (Twice amended) An ETC (electronic toll collection) system comprising:

an antenna having a predetermined directivity for providing a limited radio-communication service zone;

a vehicle sensor preceded by said antenna by a predetermined interval for detecting a vehicle which reaches a predetermined position in the limited radio-communication service zone;

first means for transmitting a radio signal via the antenna;

second means for deciding whether or not a radio response to the radio signal is received via the antenna;

third means for, in cases where the second means decides that a radio response to the radio signal is received, judging that there is an ETC vehicle incoming; and

fourth means for, in cases where the vehicle sensor detects a vehicle while the second means decides that a radio response to the radio signal is not received, judging that there is a non-ETC vehicle incoming.

6. (Amended) An ETC (Electronic Toll Collection) system, comprising:

an antenna;

transceiver means working cooperatively with said antenna for outputting a radio signal at a given rating level to cover a limited radio-communication service zone;

a vehicle sensor preceded by said antenna by a predetermined interval for detecting whether a vehicle has reached a predetermined position in said limited radio-communication zone;

said transceiver means further working cooperatively with said antenna for detecting radio response to said radio signal from each vehicle detected by said vehicle sensor within said radio-communication zone; and

processor means for deciding a vehicle that has been detected by said vehicle sensor in said radio-communication zone is a non-ETC vehicle if no radio response to said radio signal is detected from said vehicle.